

Exhibit 5

U.S. Patent No. 7,325,733 (“’733 Patent”)**Accused Products**

Samsung products implementing Android Doze, including without limitation the Samsung Galaxy S20 (“Accused Products”) infringe at least Claims 1, 13, and 22 of the ’733 Patent.

Claim 1

Claim 1	Accused Products				
[1pre] A System, comprising:	<p>To the extent the preamble is limiting, each Accused Product comprises the claimed system.</p> <p>For example, the Galaxy S20 is a mobile phone comprising a processor, a Wi-Fi device, and internal storage containing the Android 10 operating system. The Android operating system contains functionality for the Android “Doze” feature.</p> <p>See discussion of claim limitations below.</p>				
[1a] a processor;	<p>Each Accused Product includes a processor.</p> <p>For example, the Galaxy S20 includes a “64-bit Octa-Core Processor.”</p> <p><i>See, e.g.:</i></p> <div data-bbox="783 979 1801 1040"> <table> <tr> <td>AP</td> <td>7nm 64-bit Octa-Core Processor * 2.7GHz (Maximum Clock Speed) + 2.5GHz + 2GHz</td> </tr> <tr> <td></td> <td>7nm 64-bit Octa-Core Processor * 2.8GHz (Maximum Clock Speed) + 2.4GHz + 1.8GHz</td> </tr> </table> </div> <p>*May differ by country and carrier.</p> <p>Screenshot, showing processor, from https://www.samsung.com/us/mobile/galaxy-s20-5g/specs/</p>	AP	7nm 64-bit Octa-Core Processor * 2.7GHz (Maximum Clock Speed) + 2.5GHz + 2GHz		7nm 64-bit Octa-Core Processor * 2.8GHz (Maximum Clock Speed) + 2.4GHz + 1.8GHz
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	7nm 64-bit Octa-Core Processor * 2.8GHz (Maximum Clock Speed) + 2.4GHz + 1.8GHz				
[1b] a host controller coupled to the processor; and	<p>Each Accused Product includes a host controller coupled to the processor.</p> <p>For example, the Galaxy S20 includes one or more bus controllers connecting the processor to the Wi-Fi device.</p>				

Claim 1	Accused Products
	<p><i>See, e.g.:</i></p> <p>AP</p> <p>7nm 64-bit Octa-Core Processor * 2.7GHz (Maximum Clock Speed) + 2.5GHz + 2GHz 7nm 64-bit Octa-Core Processor * 2.8GHz (Maximum Clock Speed) + 2.4GHz + 1.8GHz</p> <p>*May differ by country and carrier.</p> <p>Wi-Fi</p> <p>Wi-Fi 802.11 a/b/g/n/ac/ax 2.4G+5GHz, HE80, MIMO, 1024-QAM Up to 1.2Gbps Download / Up to 1.2Gbps Upload</p> <p>Screenshot, showing Wi-Fi device and processor, from https://www.samsung.com/us/mobile/galaxy-s20-5g/specs/</p>
[1c] a device coupled to the host controller;	<p>Each Accused Product includes a device coupled to the host controller.</p> <p>For example, the Galaxy S20 includes a Wi-Fi device.</p> <p><i>See, e.g.:</i></p>

Claim 1	Accused Products
	<p>Wi-Fi</p> <p>Wi-Fi 802.11 a/b/g/n/ac/ax 2.4G+5GHz, HE80, MIMO, 1024-QAM Up to 1.2Gbps Download / Up to 1.2Gbps Upload</p> <p>Screenshot, showing Wi-Fi device, from https://www.samsung.com/us/mobile/galaxy-s20-5g/specs/</p>
<p>[1d] wherein the device is electrically disconnected from the host controller if the device is not in an active state; and</p>	<p>In each Accused Product, the device is electrically disconnected from the host controller if the device is not in an active state.</p> <p>For example, the Galaxy S20 contains the Android 10 operating system, which contains the Doze feature. The Doze feature determines that the Galaxy S20 is in a Doze state when it determines that “the [Galaxy S20] is unused for long periods of time,” for example when the screen is not on, the Galaxy S20 is unplugged, and it has not moved recently.</p> <p>For another example, the Doze feature of Android 10 causes the Wi-Fi device to disconnect from the network and to cease scanning for Wi-Fi networks when the Galaxy S20 enters Doze mode. This puts the Wi-Fi device into an inactive state and causes it to cease sending network communications to the processor via the host controller.</p> <p><i>See, e.g.:</i></p>

Claim 1	Accused Products
	<p>Doze restrictions</p> <p>The following restrictions apply to your apps while in Doze:</p> <ul style="list-style-type: none"> • Network access is suspended. • The system ignores wake locks. • Standard AlarmManager alarms (including setExact() and setWindow()) are deferred to the next maintenance window. <ul style="list-style-type: none"> • If you need to set alarms that fire while in Doze, use setAndAllowWhileIdle() or setExactAndAllowWhileIdle(). • Alarms set with setAlarmClock() continue to fire normally – the system exits Doze shortly before those alarms fire. • The system does not perform Wi-Fi scans. • The system does not allow sync adapters to run. • The system does not allow JobScheduler to run. <p>Excerpt, describing Doze functionality, from https://developer.android.com/training/monitoring-device-state/doze-standby</p>

Claim 1	Accused Products																		
	<table><tr><th>Action</th><th>Doze</th><th>Lightweight Doze</th></tr><tr><td>Trigger</td><td>Screen off, on battery, stationary</td><td>Screen off, on battery (unplugged)</td></tr><tr><td>Timing</td><td>Successively increasing periods with maintenance</td><td>Repeated N-minute periods with maintenance windows</td></tr><tr><td>Restrictions</td><td>No network access, wake lock, or GPS/Wi-Fi scan; alarms and jobs/syncs deferred</td><td>No network access; jobs/syncs deferred except during maintenance windows</td></tr><tr><td>Behavior</td><td>Only high-priority push notification messages received</td><td>All real-time messages (instant messages, calls, etc.) received; high-priority push notification message enables temporary network access</td></tr><tr><td>Exit</td><td>Motion, screen on, or alarm clock alarm</td><td>Screen on</td></tr></table> <p>Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p> <h3>8.3. Power-Saving Modes</h3> <p>If device implementations include features to improve device power management that are included in AOSP or extend the features that are included in AOSP, they:</p> <ul style="list-style-type: none">• [C-1-1] MUST NOT deviate from the AOSP implementation for the triggering, maintenance, wakeup algorithms and the use of global system settings of App Standby and Doze power-saving modes.• [C-1-4] MUST implement App Standby Buckets and Doze as described in Power Management. <p>Excerpts, describing Doze functionality, from https://source.android.com/compatibility/10/android-10-cdd</p>	Action	Doze	Lightweight Doze	Trigger	Screen off, on battery, stationary	Screen off, on battery (unplugged)	Timing	Successively increasing periods with maintenance	Repeated N-minute periods with maintenance windows	Restrictions	No network access, wake lock, or GPS/Wi-Fi scan; alarms and jobs/syncs deferred	No network access; jobs/syncs deferred except during maintenance windows	Behavior	Only high-priority push notification messages received	All real-time messages (instant messages, calls, etc.) received; high-priority push notification message enables temporary network access	Exit	Motion, screen on, or alarm clock alarm	Screen on
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Claim 1	Accused Products
	<p data-bbox="779 272 1587 326">Optimize for Doze and App Standby</p> <p data-bbox="779 370 1871 553">Starting from Android 6.0 (API level 23), Android introduces two power-saving features that extend battery life for users by managing how apps behave when a device is not connected to a power source. <i>Doze</i> reduces battery consumption by deferring background CPU and network activity for apps when the device is unused for long periods of time. <i>App Standby</i> defers background network activity for apps with which the user has not recently interacted.</p> <p data-bbox="768 573 1749 643">Excerpt, describing Doze functionality, from https://developer.android.com/training/monitoring-device-state/doze-standby</p>

Understanding Doze

If a user leaves a device unplugged and stationary for a period of time, with the screen off, the device enters Doze mode. In Doze mode, the system attempts to conserve battery by restricting apps' access to network and CPU-intensive services. It also prevents apps from accessing the network and defers their jobs, syncs, and standard alarms.

Periodically, the system exits Doze for a brief time to let apps complete their deferred activities. During this *maintenance window*, the system runs all pending syncs, jobs, and alarms, and lets apps access the network.

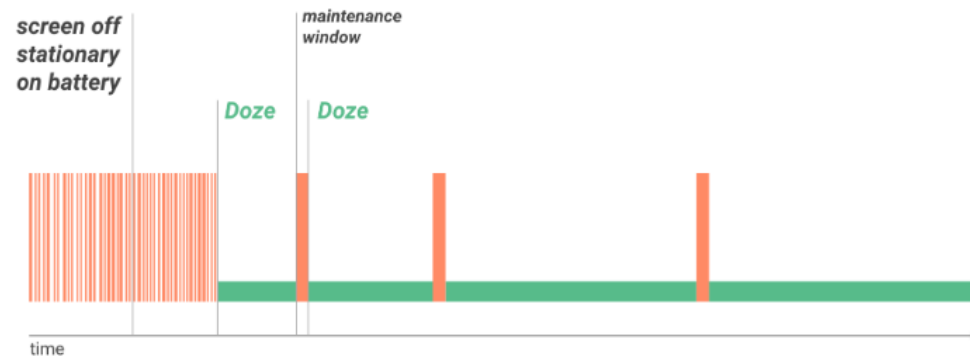


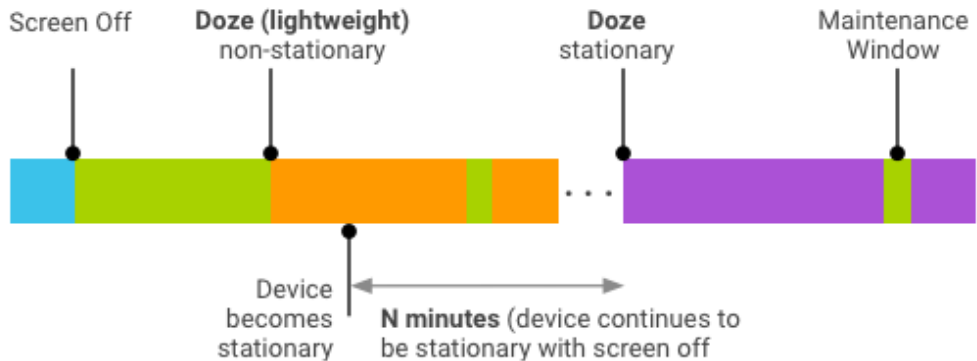
Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

Excerpt, describing Doze functionality, from <https://developer.android.com/training/monitoring-device-state/doze-standby>

Claim 1	Accused Products
	<p data-bbox="785 264 1457 321">Platform Power Management</p> <p data-bbox="785 363 1835 467">To improve device battery life, Android can affect the device state by monitoring device use and wakefulness. The platform can enter a state of sleep to pause activities from running while the device is unused.</p> <p data-bbox="785 540 869 581">Doze</p> <hr data-bbox="785 589 1881 592"/> <p data-bbox="785 626 1850 695">Doze extends battery life by deferring app background CPU and network activity when a device is unused for long periods.</p> <p data-bbox="785 727 1877 938">Idle devices in Doze periodically enter a maintenance window, during which apps can complete pending work (syncs, jobs, etc.). Doze then resumes sleep for a longer period of time, followed by another maintenance window. The platform continues the Doze sleep/maintenance sequence, increasing the length of idle each time, until a maximum of a few hours of sleep time is reached. At all times, a device in Doze remains aware of motion and immediately leaves Doze if motion is detected.</p> <p data-bbox="785 976 1881 1079">Android 7.0 and higher extends Doze to trigger a lighter set of optimizations every time a user turns off the device screen, even when the user continues to move around, enabling longer-lasting battery life.</p> <p data-bbox="785 1101 1570 1169">Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p>

Claim 1	Accused Products
	<p>Doze lifecycle</p> <p>Doze begins when the platform detects that the device is idle and ends when one or more exit criteria activities occur.</p> <p>Detection</p> <p>The platform detects that a device is idle when:</p> <ul style="list-style-type: none"> • Device is stationary (using SMD). • Device screen is off for some amount of time. <p>Doze mode doesn't engage while a battery-powered device is plugged into a power charger.</p> <p>Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p>  <p>Figure 1. Doze modes for nonstationary and stationary devices</p> <p>Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p>

Claim 1	Accused Products
[1e] wherein the device being electrically disconnected from the host controller causes an appearance to the host controller that the device is not coupled to the host controller.	<p>In each Accused Product, the device being electrically disconnected from the host controller causes an appearance to the host controller that the device is not coupled to the host controller.</p> <p>For example, when the Galaxy S20 is in Doze mode, the disconnection or suspension of Wi-Fi connection and scanning causes an appearance to host controller that the Wi-Fi device is not coupled to the host controller. For example, the Wi-Fi device enters an inactive state.</p>

Claim 13

Claim 13	Accused Products
[13pre]. A method, comprising:	<p>To the extent the preamble is limiting, each Accused Product performs the claimed method.</p> <p><i>See supra</i> claim element [1pre].</p>
[13a] detecting whether a device coupled to a host controller is in an active state;	<p>Each Accused Product performs detecting whether a device coupled to a host controller is in an active state.</p> <p>For example, the device is detected to be in an active state when the system is not in Doze mode.</p> <p><i>See, e.g.:</i></p>

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	<p>Doze restrictions</p> <p>The following restrictions apply to your apps while in Doze:</p> <ul style="list-style-type: none"> • Network access is suspended. • The system ignores wake locks. • Standard AlarmManager alarms (including setExact() and setWindow()) are deferred to the next maintenance window. <ul style="list-style-type: none"> • If you need to set alarms that fire while in Doze, use setAndAllowWhileIdle() or setExactAndAllowWhileIdle(). • Alarms set with setAlarmClock() continue to fire normally – the system exits Doze shortly before those alarms fire. • The system does not perform Wi-Fi scans. • The system does not allow sync adapters to run. • The system does not allow JobScheduler to run. <p>Excerpt, describing Doze functionality, from https://developer.android.com/training/monitoring-device-state/doze-standby</p>

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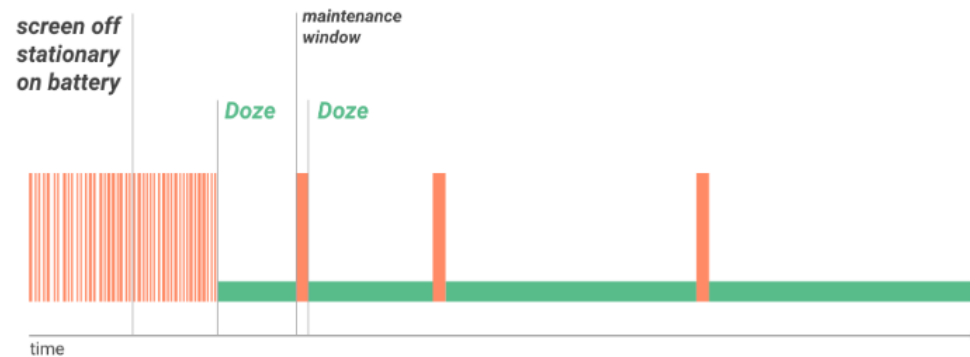


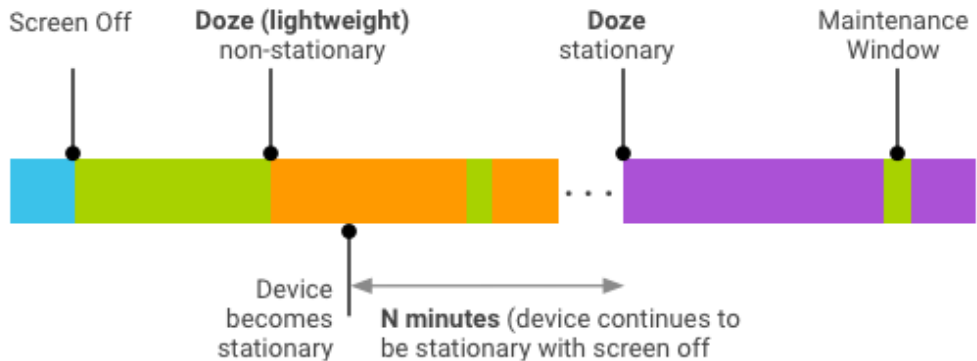
Figure 1. Doze provides a recurring maintenance window for apps to use the network and handle pending activities.

At the conclusion of each maintenance window, the system again enters Doze, suspending network access and deferring jobs, syncs, and alarms. Over time, the system schedules maintenance windows less and less frequently, helping to reduce battery consumption in cases of longer-term inactivity when the device is not connected to a charger.

As soon as the user wakes the device by moving it, turning on the screen, or connecting a charger, the system exits Doze and all apps return to normal activity.

Excerpt, describing Doze functionality, from <https://developer.android.com/training/monitoring-device-state/doze-standby>

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Claim 13	Accused Products
	<p>Doze lifecycle</p> <p>Doze begins when the platform detects that the device is idle and ends when one or more exit criteria activities occur.</p> <p>Detection</p> <p>The platform detects that a device is idle when:</p> <ul style="list-style-type: none"> • Device is stationary (using SMD). • Device screen is off for some amount of time. <p>Doze mode doesn't engage while a battery-powered device is plugged into a power charger.</p> <p>Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p>  <p>Figure 1. Doze modes for nonstationary and stationary devices</p> <p>Excerpt, describing Doze functionality, from https://source.android.com/devices/tech/power/platform_mgmt</p>

Claim 13	Accused Products
[13b] if the device is not in an active state, electrically disconnecting the device from a host controller, wherein electrically disconnecting the device from the host controller causes an appearance to the host controller that the device is not coupled to the host controller; and	Each Accused Product performs if the device is not in an active state, electrically disconnecting the device from a host controller, wherein electrically disconnecting the device from the host controller causes an appearance to the host controller that the device is not coupled to the host controller. <i>See supra</i> claim elements [1d] and [1e].
[13c] if the device is in an active state, maintaining an electrical connection between the device and the host controller.	Each Accused Product performs if the device is in an active state, maintaining an electrical connection between the device and the host controller. For example, when the system is not in Modern Standby idle mode, the system does not electrically disconnect the device from the host controller. <i>See supra</i> claim element [1d].

Claim 22

Claim 22	Accused Products
[22pre]. A computer accessible memory medium that stores program instructions, wherein the program instructions are executable by a processor to:	Each Accused Product includes a computer accessible memory medium that stores program instructions, wherein the program instructions are executable by a processor to perform the claimed steps. <i>See supra</i> claim element [1pre].
[22a] detect whether a device coupled to a host controller is in an active state;	In each Accused Product, the program instructions are executable to detect whether a device coupled to a host controller is in an active state. <i>See supra</i> claim element [13a].
[22b] if the device is not in an active state, electrically disconnect the device from a host controller, wherein electrically disconnecting the device	In each Accused Product, the program instructions are executable to, if the device is not in an active state, electrically disconnect the device from a host controller, wherein

Claim 22	Accused Products
<p>from the host controller causes an appearance to the host controller that a device is not coupled to the host controller; and</p>	<p>electrically disconnecting the device from the host controller causes an appearance to the host controller that a device is not coupled to the host controller.</p> <p><i>See supra</i> claim elements [1d] and [1e].</p>
<p>[22c] if the device is in an active state, maintain an electrical connection between the device and the host controller.</p>	<p>In each Accused Product, the program instructions are executable to, if the device is in an active state, maintain an electrical connection between the device and the host controller.</p> <p><i>See supra</i> claim element [13c].</p>